

## **REMARKS**

### **I. Status of Claims**

The Applicants note with appreciation the indication of claim 2 being allowable if rewritten in independent form. The Applicants have carefully considered the Office Action dated October 29, 2008, and the references it cites. Currently, claims 1, 3, 4, 6, 8-13, 16-28, 20-37, and 42 are pending in this application. In the Office Action, the Examiner rejected:

- claims 1, 3-5, 11, 34, 35, and 42 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Publication No. 2005/0220180 to Barlev et al. (*Barlev*) in view of U.S. Patent No. 7,006,500 to Pederson et al. (*Pederson*) and in further view of U.S. Patent Publication No. 2003/0169780 to Kukic (*Kukic*);
- claims 6, 28, and 37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson* in further view of U.S. Patent No. 6,437,023 to Sheets et al. (*Sheets*);
- claims 25-27 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*;
- claim 36 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson* and *Kukic* and in further view of U.S. Patent Publication No. 2002/0080825 to Wolf et al. (*Wolf*);
- claim 8 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson* in further view of U.S. Patent No. 7,230,977 to Somekh et al. (*Somekh*) and yet in further view of U.S. Patent No. 6,967,589 to Peters (*Peters*);
- claims 9, 10, 31 and 32 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*, *Somekh*, and *Peters* and yet in further view of U.S. Patent No. 5,060,226 to Gewin et al. (*Gewin*);
- claims 30 and 33 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*, *Somekh*, and *Peters* and yet in further view of *Sheets*;
- claims 12 and 13 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*, *Somekh*, and *Peters* and in further view of ADC Telecommunications "A" and "C";
- claim 16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*, *Somekh*, and *Peters*, and in further view of U.S. Patent No. 7,058,011 to Stearns (*Stearns*); and

- claims 17-24 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson*, *Somekh*, *Peters*, and U.S. Patent No. 6,275,589 to Koenig (*Koenig*).

## II. Claim Rejections under 35 U.S.C. § 103(a)

Regarding the rejection of claims 1, 3-5, 11, 34, 35, and 42 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson* and in further view of *Kukic*, the Examiner states in the “Response to Arguments” section of the office action that *Kukic* purportedly teaches a DS3 and inversely multiplexed streams of approximately 11 Mbps per stream as claimed, and refers to paragraph [0018] (*sic*) of *Kukic* in support of his contention. The Applicants respectfully submit that the disclosure in paragraph [0017] of *Kukic* that the links 28<sub>a-n</sub> may be physically combined for all or part of the path between IMUX 20 and 22 (e.g., data streams can be multiplexed onto higher capacity physical communication links, such as a DS3 link) is not relevant. Multiplexing along part or all of the path between two IMUXs 20 and 22 does not change the operation of the IMUXs 20 and 22, which at most only divide an 8 Mbps ATM cell stream over DS1 or T1 (1.544 Mbps) as disclosed in *Kukic*. The aggregation of these DS1 or T1 outputs of the IMUXs 20 and 22 into a DS3, for example as suggested by the Examiner, for subsequent transport along all or part of the path(s) between the IMUXs is not relevant.

In the “Response to Arguments” section of the office action, the Examiner states that “*Barlev* explicitly discloses that the invention is not limited to applications over the local loop plant, but may be used in any environment having a plurality of copper lines, such as a large building.” The Applicants respectfully submit that the Examiner is impermissibly misconstruing this statement in *Barlev* in a manner that is inconsistent with both the surrounding text and the remainder of the text in *Barlev*. As stated in paragraphs [0031] and [0032] of *Barlev*, the stated objective of the HSAS disclosed therein is to transport a high speed data stream over a plurality of relatively low bandwidth twisted copper pairs over a “long range communication channel” that is defined in Table 1 of *Barlev* to be **not less than 6,000 feet**. Further, paragraph [0032] of *Barlev* states that the HSAS disclosed therein and relied on to purportedly teach the claimed invention is only for a link from the CO to the node and **not** a link over the “*relatively short distance* ‘drop segment,’ i.e., from the node to the user.” xDSL and not the disclosed HSAS is used for the drop segment.

Thus, the HSAS described in *Barlev* does not teach the claimed invention. The claimed invention transports a high speed data stream such as DS3 over a few copper pairs operating at very high bandwidth (e.g., 13 Mbps) which is useful over a short range (e.g., a maximum distance of 2,300 feet) or, when used in a back-to-back configuration the implements a loopback advantage of the present invention (e.g., as exemplified in paragraph [0021] and Fig. 2 or in paragraph [0038] and Fig. 5b of the application) in two or more 2,300 feet segments.

In the Amendment filed March 10, 2008, Applicants respectfully submitted that the link bonded link interface 26 in *Pedersen* did not teach receiving each of plural inversely multiplexed parallel streams as claimed in claim 1. More specifically, claim 1 recites that a DS3 stream is inverse multiplexed into four parallel data streams that are then packetized by the recited framer to generate a stream of packets where each packet has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

Neither the link bonding engine 24 nor the native link interface 22 depicted in Fig. 1b of *Pedersen* teaches a framer that generates packets from parallel data streams that have a packet index number and a packet stream number as recited in claim 1. The link bonding engine 24 and the native link interface 22 are described in the context of ATM cells that exist in the native flow. The native link interface 22 can modify the cells to include additional header information or transmit the cells unmodified per col. 5, lines 11-16 of *Pedersen*, in either case, does not generate cells which appear to have been analogized as packets in the rejection with reference to the bonded link interface 26 placing cells across physical links. The frame scheduler 55 in the link bonding engine 24 arbitrates among queues of cells, but the cells are not generated by the link bonding engine 24 as they exist in the native flow. Further, the sequence number relied on in the Office Action is a cell sequence number and therefore is provided to a cell that existed in the native flow and was not generated by the link bonding engine in contrast with the framer as claimed.

To the extent the Examiner alleges the combination of the bonded link interface 26 and the link bonding engine 24 are analogous to the framer, which is a point the Applicants do not concede, the Applicants note that the alleged combination does not describe a framer to generate a stream of packets, each packet having a packet index number and a packet stream number. As noted above, *Pederson* uses ATM to transmit the received signals. Accordingly, if one of the native flows is ATM, the cells may be transmitted across the bonded link interface unmodified. See *Pederson* at 5:13-16. Thus, the bonded link interface

26 and the link bonding engine 24 are not analogous to the claim 1, which recites a framer adapted to generate a stream of packets, each packet having a packet stream number, among other limitations.

By contrast, the claimed invention is advantageous because, among other reasons, data streams inversely multiplexed from a DS3 data stream are packetized at the framer without concern for existing structures in a stream such as ATM cells; therefore, the claimed invention obviates the mapping, queuing of cells, and encapsulation operations described in *Pedersen*.

Similarly, the ATM data stream disclosed in *Kukic* is already packaged into cells prior to being divided and therefore does not teach the DS3 stream nor parallel data streams recited in claim 1.

In view of the foregoing, Applicants respectfully request withdrawal of the rejection of independent claim 1, its dependent claims 3, 4 and 11. Independent claim 34 is similar to claim 1 and is therefore also believed to be allowable over the cited art as well as its dependent claims 35 and 42. Claims 8, 9, 10-13, 16-27, 30, 32, 33 and 36 are also believed to be patentable over the cited art for the above reasons. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 8, 9, 10-13, 16-27, 30, 32, 33 and 36. For example, in the "Response to Arguments section of the office action that discusses claim 8, the Examiner states that he relies on *Pedersen* to teach a framer. For reasons stated above, Applicants respectfully submit that *Pedersen* fails to teach a framer.

Regarding the rejection of claims 6, 28, and 37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Barlev* in view of *Pederson* in further view of *Sheets*, and the rejection of claims 30 and 33 using a combination of references including *Sheets* as well, the Examiner has, in the "Response to Arguments section of the office action, misstated the Applicants' argument set forth in the Amendment filed March 10, 2008 and apparently not considered the Applicants' argument in its entirety. The Applicants argued that *Sheets* is completely silent regarding a line element passing a loopback code and then entering a loopback mode if a subsequent code is received without an intervening loop down code. The section of *Sheets et al* relied on in the Office Action merely describes a three step process whereby line elements receive an "arm" code from the test set 40 to cause them to look for a loopup code, and then the test set activates a selected line element with a loopup code, and then the selected line element acknowledges the code by sending an inverted address to avoid

it being confused with another line element at the test set. The Examiner states that the loopup code generated by the test set of *Sheets* may comprises three seconds of the address of the repeater to ensure that the address is transmitted rather than noise. This three seconds of address in one loopup code does not disclose or teach a received loopback code and a subsequent loopback code received without an intervening loop down code, among other limitations.

In view of the foregoing, Applicants respectfully request withdrawal of the rejection of independent claim 6 and claims 30 and 33. Independent claim 37 is similar to claim 6 and is therefore also believed to be allowable over the cited art. Claim 28 recites a system for receiving that is generally the inverse of the system for transmitting recited in claim 6 and therefore is not taught or suggested by the cited art for reasons stated above in connection with claim 1 with reference to *Barlev* and *Pedersen* and in connection with claim 6 with reference to *Sheets*.

### **III. Conclusion**

The Applicants submit that the above amendments and arguments are fully responsive to the Office Action dated October 29, 2008. Further, the Applicants submit that, for at least the foregoing reasons, all pending claims are in condition for allowance and notice to that effect is requested. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

#### ***Deposit Account Authorization***

Although no fee is believed due by submission of this paper, authorization is hereby made to charge any fees due or outstanding, or credit any overpayment, to Deposit Account No. **18-2220** (Order No. 45047)

Respectfully submitted,

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